Nantucket Electric
A National Grid Company

NANTUCKET ELECTRIC COMPANY
MDTE 04-10

NANTUCKET ELECTRIC COMPANY'S RESPONSES TO THE DEPARTMENT'S FIRST SET OF INFORMATION REQUESTS

By

Nantucket Electric Company
2 Fairgrounds Road
Nantucket, MA 02554

August 20, 2004

National Grid

Paige Graening
Counsel

August 20, 2004

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station, 2nd Floor
Boston, MA 02110

RE: DTE 04-10 -- Nantucket Electric Company's Responses to the Department's First Set of Information Requests

Dear Secretary Cottrell:

Enclosed for filing are one (1) original and one (1) copy of the captioned materials. Four (4) copies of the materials are marked for delivery to Hearing Officer Denise Desautels. The electronic version of this filing is also tendered today to dte.efiling@state.ma.us and to Densise.Desautels@state.ma.us.

An additional copy of this filing letter is to be date- and time-stamped and returned in the enclosed self-addressed, stamped envelope.

Respectfully submitted,

Paige Graening

PG/sag

Enclosures

Cc: David Rosenzweig, Esq.
Stephen and Sandra Tise

25 Research Drive
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Information Request DTE-G-1

Request:

Please refer to Exh. NEC-FPR-1 at A-8. Please indicate the use the Company expects to make of the spare 8-inch steel pipe that it anticipates installing as part of the proposed project.

Response:

National Grid's Distribution Construction Standard GS 3105 specifies that the minimum number of installed ducts shall be two and that one spare duct is required. See Appendix A. A spare conduit is generally installed during the construction of distribution duct bank. This conduit would be used to expedite the restoration of the circuit in the event of an event that resulted in damage to the preferred conduit or a failed section of cable that could not be removed from the preferred conduit.

Although there are no indications over the horizon of Nantucket Electric's Supply Area Forecast that an additional supply cable will be required, it is conceivable that the second conduit could be used in the future for an additional cable to serve the customers of Nantucket Electric.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

National Grid

CONDUIT CONSTRUCTION SPECIFICATIONS

GS 3105

This specification is part of conduit construction drawings in the 3100 Group of STANDARDS.

1. APPLICATIONS - This STANDARD shall apply to all conduit installations, except laterals.

2. NUMBER OF DUCTS - Maximum number of ducts in a multiple duct bank shall be 12. Minimum number of ducts shall be two, where one spare (unoccupied) duct is required.

3. DUCT SIZE - Nominal inside diameter of duct shall be determined by District Engineering for the specific cable to be installed and shall account for future requirements. In general, for downtown city installations, the nominal inside duct diameter should not be less than five inches. Six inch duct may be installed where required. Refer to STANDARD GS 3100 for detailed duct specifications.

4. CONCRETE - Shall be in accordance with STANDARD GS 0211, mix M3 without air-entrainment agents.

5. CURVES - Shall be formed using 5° couplings. Minimum length of duct segments between single 5° couplings is 41 inches. This construction results in a 40 foot radius bend. Use longer segments to get a larger radius whenever practical. If a tighter radius is required, refer to District Engineering for recommendation.

6. TRENCH BOTTOM - Shall be solid, undisturbed earth. Earth showing extensive signs of peat, cinders, rubble, frozen material or any conditions not suitable for a stable foundation should be reported to District Engineering for recommendation. Small pockets (up to 1 cu. yd.) of unsuitable soil shall be excavated and replaced with compacted gravel (max. 2" stone).

7. CLEARANCES between the conduit envelope and major subsurface pipes and structures should be at least 6 inches; clearances to services and laterals should be at least 2 inches. Provide a minimum of 30 inches of cover, measured from the top of the conduit envelope to final grade. Where above minimum cannot be met, refer to District Engineering.

8. CONDUIT CONSTRUCTION - Shall utilize the UNIT METHOD. Separation between adjacent ducts shall be 1 ½ inches. The concrete thickness around the outside ducts shall be 3 to 6 inches. The conduit shall be fully assembled using spacers to make up the required formation. Trench walls may be used to form the concrete envelope only if soil conditions permit. The trench walls must be firm, vertical, and meet the required dimensions of the concrete envelope. In every other case, forms shall be used. Spacers shall be used every 5 to 8 feet along the conduit, with a spacer being placed at each joint. Duct joints shall be installed according to STANDARD GS 3100. If the interval between concrete pours is expected to exceed 4 hours, then #4 reinforcing bars 6 feet long shall be installed in the corners and between ducts on the top and bottom rows. Backfilling shall not commence less than two hours after concrete pouring.

CONDUIT CONSTRUCTION SPECIFICATIONS

9. CONDUIT LENGTH - Should generally be less than 600 feet. Refer to District engineering for longer sections.

10. MANDRELL completed ducts by pulling through an approved flexible mandrell no less than 1/4 inch smaller in diameter than the duct nominal inside diameter.

11. PULL LINE - Approved 2500 lb pulling tape shall be left in all ducts including laterals.

12. INSPECTION - Company Inspectors shall perform on site inspection of installation after duct sections are complete and prior to pouring concrete or backfilling any portion of the installation.

Nantucket Electric Company
Docket No. D.T.E. 04-10
Responses to the Department's First Set of Information Requests

Information Request DTE-G-2

Request:

Please refer to the Testimony of David Fredericks at 4 to 5. Please submit a copy of the Company's peak demand and updated peak demand forecasts, dated January 1, 2003 and May 1, 2004, respectively.

Response:

Since the Department requires that the Company file its annual ten-year demand forecast each year on January 1 (in 2004, the Department granted the Company an extension of this filing to May 1), the Company's latest available forecast for this filing is always the one completed on June 1 of the previous year.

The forecast referred to on page 4, lines 20-23 of Mr. Frederick's testimony, prepared for the Company by Regional Economic Research (RER), was filed with the Department on January 1, 2003. This forecast is dated March 5, 2002 and is attached as Appendix A.

The forecast filed on May 1, 2004 is dated June 1, 2003 and attached as Appendix B.

The Company's latest peak demand forecast, dated June 1, 2004, is attached as Appendix C. This forecast is scheduled to be filed with the DTE on January 1, 2005, as part of the required annual ten-year demand forecast filing. This updated forecast was not yet available when Mr. Frederick's testimony was submitted and therefore was not referred to in his testimony.

Prepared by or under the supervision of: David Fredericks

PSA Forecast 2002

3/5/2002

Nantucket Electric Company

Nantucket District

****Summer Peak at Time of Company Peak****

Peak Forecast (MW)						
					With Spot Loads	
Year	Mo	Actual Pks	50% Prob	5% Prob	50% Prob	5% Prob
1996	8	23.50				
1997	8	23.50	26.29	28.73	26.29	28.73
1998	8	25.44	26.36	29.10	26.36	29.10
1999	8	27.15	27.46	30.30	27.46	30.30
2000	8	28.43	29.38	32.37	29.38	32.37
2001	8	31.00	30.06	33.10	30.06	33.10
2002	7		30.99	34.11	30.99	34.11
2003	7		31.28	34.41	31.28	34.41
2004	7		32.01	35.21	32.01	35.21
2005	7		32.72	35.97	32.72	35.97
2006	7		33.42	36.72	33.42	36.72
2007	7		34.16	37.53	34.16	37.53
2008	7		34.90	38.33	34.90	38.33
2009	7		35.65	39.14	35.65	39.14
2010	7		36.42	39.97	36.42	39.97
2011	7		37.22	40.83	37.22	40.83
2012	7		37.97	41.64	37.97	41.64
2013	7		38.72	42.46	38.72	42.46
2014	7		39.49	43.29	39.49	43.29
2015	7		40.26	44.12	40.26	44.12
2016	7		41.38	45.32	41.38	45.32

Levelized Growth Rates:

1996-2001 (5 yrs)	5.69%				
2001-2006 (5 yrs)		2.14%	2.10%	2.14%	2.10%
2006-2011 (5 yrs)		2.18%	2.14%	2.18%	2.14%
2011-2016 (5 yrs)		2.14%	2.11%	2.14%	2.11%

3/5/2002

PSA Forecast 2002

Nantucket Electric Company

Nantucket District - Nantucket

****Winter Peak at Time of Company Peak****

Peak Forecast (MW)						
					With Spot Loads	
Year	Mo	Actual Pks	50% Prob	5% Prob	50% Prob	5% Prob
1996	12	19.50				
1997	11	20.90	20.42	23.40	20.42	23.40
1998	12	19.95	22.28	25.16	22.28	25.16
1999	3	23.11	21.67	24.36	21.67	24.36
2000	1	27.58	27.44	30.95	27.44	30.95
2001	12	22.25	26.24	29.30	26.24	29.30
2002	1		25.50	28.50	25.50	28.50
2003	1		25.92	28.95	25.92	28.95
2004	1		26.65	29.74	26.65	29.74
2005	1		27.38	30.53	27.38	30.53
2006	1		28.07	31.28	28.07	31.28
2007	1		28.79	32.05	28.79	32.05
2008	1		29.54	32.87	29.54	32.87
2009	1		30.28	33.66	30.28	33.66
2010	1		31.04	34.48	31.04	34.48
2011	1		31.82	35.32	31.82	35.32
2012	1		32.60	36.17	32.60	36.17
2013	1		33.35	36.98	33.35	36.98
2014	1		34.11	37.80	34.11	37.80
2015	1		34.88	38.63	34.88	38.63
2016	1		35.66	39.47	35.66	39.47

Levelized Growth Rates:

1996-2001	(5 yrs)	2.67%				
2001-2006	(5 yrs)		1.36%	1.32%	1.36%	1.32%
2006-2011	(5 yrs)		2.53%	2.46%	2.53%	2.46%
2011-2016	(5 yrs)		2.31%	2.25%	2.31%	2.25%

PSA FORECAST 2003
NANTUCKET ELECTRIC COMPANY AND PSA
SUMMER PEAK DEMAND WITH SPOT LOADS
(MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
1995	8	22.000	.	22.000	.	.	.	.	.	.	.
1996	8	23.500	6.8%	23.500	6.8%	.	.	.	.	.	.
1997	8	23.500	0.0%	23.500	0.0%	26.348	.	23.598	.	0.000	0.0%
1998	8	25.440	8.3%	25.440	8.3%	27.590	4.7%	24.833	5.2%	0.000	0.0%
1999	8	27.150	6.7%	27.150	6.7%	30.109	9.1%	27.338	10.1%	0.000	0.0%
2000	8	28.429	4.7%	28.429	4.7%	29.766	(1.1%)	26.997	(1.2)	0.000	0.0%
2001	8	31.000	9.0%	31.000	9.0%	30.359	2.0%	27.587	2.2%	0.000	0.0%
2002	8	32.410	4.5%	32.410	4.5%	32.965	8.6%	30.177	9.4%	0.000	0.0%
Forecast											
2003	8	33.196	2.4%	30.407	(6.2%)	33.196	0.7%	30.407	0.8%	0.000	0.0%
2004	8	34.142	2.8%	31.348	3.1%	34.142	2.8%	31.348	3.1%	0.000	0.0%
2005	8	34.941	2.3%	32.142	2.5%	34.941	2.3%	32.142	2.5%	0.000	0.0%
2006	8	35.830	2.5%	33.025	2.7%	35.830	2.5%	33.025	2.7%	0.000	0.0%
2007	8	36.797	2.7%	33.987	2.9%	36.797	2.7%	33.987	2.9%	0.000	0.0%
2008	8	37.779	2.7%	34.963	2.9%	37.779	2.7%	34.963	2.9%	0.000	0.0%
2009	8	38.775	2.6%	35.953	2.8%	38.775	2.6%	35.953	2.8%	0.000	0.0%
2010	8	39.786	2.6%	36.957	2.8%	39.786	2.6%	36.957	2.8%	0.000	0.0%
2011	8	40.811	2.6%	37.976	2.8%	40.811	2.6%	37.976	2.8%	0.000	0.0%
2012	8	41.856	2.6%	39.014	2.7%	41.856	2.6%	39.014	2.7%	0.000	0.0%
2013	8	42.905	2.5%	40.057	2.7%	42.905	2.5%	40.057	2.7%	0.000	0.0%
2014	8	43.955	2.4%	41.101	2.6%	43.955	2.4%	41.101	2.6%	0.000	0.0%
2015	8	45.014	2.4%	42.153	2.6%	45.014	2.4%	42.153	2.6%	0.000	0.0%
2016	8	46.080	2.4%	43.213	2.5%	46.080	2.4%	43.213	2.5%	0.000	0.0%
2017	8	47.155	2.3%	44.281	2.5%	47.155	2.3%	44.281	2.5%	0.000	0.0%
Compound Annual Growth											
1997-2002 Five Year			6.6%		6.6%		5.0%		5.5%		
2002-2007 Five Year			2.6%		1.0%		1.4%		1.4%		
2002-2012 Ten Year			2.6%		1.9%		2.0%		2.1%		

PSA FORECAST 2003
NANTUCKET ELECTRIC COMPANY
WINTER PEAK DEMAND WITH SPOT LOADS
(MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
1995	2	20.850	.	20.850	.	.	.	.	.	.	.
1995	12	19.500	(6.5%)	19.500	(6.5%)	.	.	.	.	.	.
1997	11	20.900	7.2%	20.900	7.2%	23.147	.	19.801	.	0.000	0.0%
1997	12	19.950	(4.5%)	19.950	(4.5%)	22.046	(4.8%)	19.079	(3.6%)	0.000	0.0%
1999	1	21.210	6.3%	21.210	6.3%	24.203	9.8%	21.198	11.1%	0.000	0.0%
2000	1	27.579	30.0%	27.579	30.0%	29.097	20.2%	26.009	22.7%	0.000	0.0%
2000	12	25.900	(6.1%)	25.900	(6.1%)	26.903	(7.5%)	23.852	(8.3%)	0.000	0.0%
2001	12	20.510	(20.8%)	20.510	(20.8%)	23.117	(14.1%)	20.169	(15.4%)	0.000	0.0%
2003	1	28.060	36.8%	28.060	36.8%	28.002	21.1%	25.578	26.8%	0.000	0.0%
Forecast											
2004	1	28.970	3.2%	25.842	(7.9%)	28.970	3.5%	25.842	1.0%	0.000	0.0%
2005	1	29.856	3.1%	26.712	3.4%	29.856	3.1%	26.712	3.4%	0.000	0.0%
2006	1	30.677	2.8%	27.519	3.0%	30.677	2.8%	27.519	3.0%	0.000	0.0%
2007	1	31.578	2.9%	28.403	3.2%	31.578	2.9%	28.403	3.2%	0.000	0.0%
2008	1	32.405	2.6%	29.214	2.9%	32.405	2.6%	29.214	2.9%	0.000	0.0%
2009	1	33.432	3.2%	30.223	3.5%	33.432	3.2%	30.223	3.5%	0.000	0.0%
2010	1	34.378	2.8%	31.152	3.1%	34.378	2.8%	31.152	3.1%	0.000	0.0%
2011	1	35.338	2.8%	32.095	3.0%	35.338	2.8%	32.095	3.0%	0.000	0.0%
2012	1	36.218	2.5%	32.958	2.7%	36.218	2.5%	32.958	2.7%	0.000	0.0%
2013	1	37.205	2.7%	33.927	2.9%	37.205	2.7%	33.927	2.9%	0.000	0.0%
2014	1	38.194	2.7%	34.898	2.9%	38.194	2.7%	34.898	2.9%	0.000	0.0%
2015	1	39.188	2.6%	35.873	2.8%	39.188	2.6%	35.873	2.8%	0.000	0.0%
2016	1	40.189	2.6%	36.857	2.7%	40.189	2.6%	36.857	2.7%	0.000	0.0%
2017	1	41.198	2.5%	37.847	2.7%	41.198	2.5%	37.847	2.7%	0.000	0.0%

Compound Annual Growth

1998-2003 Five Year	7.1%	7.1%	4.9%	6.0%
2003-2008 Five Year	2.9%	0.8%	3.0%	2.7%
2003-2013 Ten Year	2.9%	1.9%	2.9%	2.9%
2003-2018 Fifteen Year	2.8%	2.2%	2.8%	2.8%

PSA FORECAST 2004
NANTUCKET ELECTRIC COMPANY
SUMMER PEAK DEMAND WITH SPOT LOADS
(MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
1996	8	23.500	.	23.500	.	.	.	.	.	.	.
1997	8	23.500	0.0%	23.500	0.0%	.	.	.	.	.	.
1998	8	25.440	8.3%	25.440	8.3%	28.480	.	27.735	.	0.000	0.0%
1999	8	27.150	6.7%	27.150	6.7%	29.569	3.8%	28.824	3.9%	0.000	0.0%
2000	8	28.429	4.7%	28.429	4.7%	31.330	6.0%	30.585	6.1%	0.000	0.0%
2001	8	31.000	9.0%	31.000	9.0%	32.243	2.9%	31.499	3.0%	0.000	0.0%
2002	8	32.410	4.5%	32.410	4.5%	33.862	5.0%	33.118	5.1%	0.000	0.0%
2003	8	33.260	2.6%	33.260	2.6%	34.755	2.6%	34.011	2.7%	0.000	0.0%
Forecast											
2004	8	34.721	4.4%	33.976	2.2%	34.721	(0.1%)	33.976	(0.1%)	0.000	0.0%
2005	8	35.530	2.3%	34.785	2.4%	35.530	2.3%	34.785	2.4%	0.000	0.0%
2006	8	36.545	2.9%	35.800	2.9%	36.545	2.9%	35.800	2.9%	0.000	0.0%
2007	8	37.730	3.2%	36.985	3.3%	37.730	3.2%	36.985	3.3%	0.000	0.0%
2008	8	39.000	3.4%	38.255	3.4%	39.000	3.4%	38.255	3.4%	0.000	0.0%
2009	8	40.417	3.6%	39.672	3.7%	40.417	3.6%	39.672	3.7%	0.000	0.0%
2010	8	41.886	3.6%	41.142	3.7%	41.886	3.6%	41.142	3.7%	0.000	0.0%
2011	8	43.364	3.5%	42.619	3.6%	43.364	3.5%	42.619	3.6%	0.000	0.0%
2012	8	44.857	3.4%	44.112	3.5%	44.857	3.4%	44.112	3.5%	0.000	0.0%
2013	8	46.432	3.5%	45.687	3.6%	46.432	3.5%	45.687	3.6%	0.000	0.0%
2014	8	47.754	2.8%	47.009	2.9%	47.754	2.8%	47.009	2.9%	0.000	0.0%
2015	8	48.987	2.6%	48.243	2.6%	48.987	2.6%	48.243	2.6%	0.000	0.0%
2016	8	50.233	2.5%	49.489	2.6%	50.233	2.5%	49.489	2.6%	0.000	0.0%
2017	8	51.538	2.6%	50.793	2.6%	51.538	2.6%	50.793	2.6%	0.000	0.0%
2018	8	52.843	2.5%	52.098	2.6%	52.843	2.5%	52.098	2.6%	0.000	0.0%

Compound Annual Growth

1998-2003 Five Year	5.5%	5.5%	4.1%	4.2%	
2003-2008 Five Year	3.2%	2.8%	2.3%	2.4%	
2003-2013 Ten Year	3.4%	3.2%	2.9%	3.0%	
2003-2018 Fifteen Year	3.1%	3.0%	2.8%	2.9%	

PSA FORECAST 2004
NANTUCKET ELECTRIC COMPANY
WINTER PEAK DEMAND WITH SPOT LOADS
(MW)

		With Actual History				With Weather Adjusted History					
Year	Mo	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Extreme Weather Scenario	Growth Rate	Normal Weather Scenario	Growth Rate	Spot Loads	% of Load
1995	12	19.500	.	19.500	.	.	.	.	.	.	.
1997	11	20.900	7.2%	20.900	7.2%	.	.	.	.	.	.
1997	12	19.950	(4.5%)	19.950	(4.5%)	23.403	.	22.089	.	0.000	0.0%
1999	1	21.210	6.3%	21.210	6.3%	24.448	4.5%	23.134	4.7%	0.000	0.0%
2000	1	27.579	30.0%	27.579	30.0%	29.893	22.3%	28.579	23.5%	0.000	0.0%
2000	12	25.900	(6.1%)	25.900	(6.1%)	27.490	(8.0%)	26.177	(8.4%)	0.000	0.0%
2001	12	20.510	(20.8%)	20.510	(20.8%)	29.131	6.0%	27.817	6.3%	0.000	0.0%
2003	1	28.060	36.8%	28.060	36.8%	28.950	(0.6%)	27.636	(0.7%)	0.000	0.0%
2004	1	31.727	13.1%	31.727	13.1%	32.020	10.6%	30.706	11.1%	0.000	0.0%
Forecast											
2005	1	32.231	1.6%	30.917	(2.6%)	32.231	0.7%	30.917	0.7%	0.000	0.0%
2006	1	33.139	2.8%	31.825	2.9%	33.139	2.8%	31.825	2.9%	0.000	0.0%
2007	1	34.277	3.4%	32.963	3.6%	34.277	3.4%	32.963	3.6%	0.000	0.0%
2008	1	35.496	3.6%	34.183	3.7%	35.496	3.6%	34.183	3.7%	0.000	0.0%
2009	1	36.832	3.8%	35.519	3.9%	36.832	3.8%	35.519	3.9%	0.000	0.0%
2010	1	38.278	3.9%	36.965	4.1%	38.278	3.9%	36.965	4.1%	0.000	0.0%
2011	1	39.761	3.9%	38.447	4.0%	39.761	3.9%	38.447	4.0%	0.000	0.0%
2012	1	41.237	3.7%	39.923	3.8%	41.237	3.7%	39.923	3.8%	0.000	0.0%
2013	1	42.772	3.7%	41.458	3.8%	42.772	3.7%	41.458	3.8%	0.000	0.0%
2014	1	44.281	3.5%	42.968	3.6%	44.281	3.5%	42.968	3.6%	0.000	0.0%
2015	1	45.530	2.8%	44.217	2.9%	45.530	2.8%	44.217	2.9%	0.000	0.0%
2016	1	46.764	2.7%	45.450	2.8%	46.764	2.7%	45.450	2.8%	0.000	0.0%
2017	1	48.041	2.7%	46.727	2.8%	48.041	2.7%	46.727	2.8%	0.000	0.0%
2018	1	49.345	2.7%	48.031	2.8%	49.345	2.7%	48.031	2.8%	0.000	0.0%
2019	1	50.653	8.4%	49.339	8.4%	50.653	5.5%	49.339	5.8%	0.000	0.0%

Compound Annual Growth

1999-2004 Five Year	8.4%	8.4%	5.5%	5.8%
2004-2009 Five Year	3.0%	2.3%	2.8%	3.0%
2004-2014 Ten Year	3.0%	2.3%	2.8%	3.0%
2003-2019 Fifteen Year	3.2%	3.0%	3.1%	3.2%

Information Request DTE-G-3

Request:

At page 4, PH Tr. 1, the Company indicates that its proposed project is at least in part a response to the higher real load growth of 5 to 6 percent for Nantucket versus the 1.2 to 2 percent load growth forecast before construction of the Company's first submarine cable.

(a) Please estimate the extent to which Nantucket real load growth is attributable to (i) increasing population or numbers of commercial customers and (ii) increasing energy consumption by existing population and customers.

(b) Please refer to the Testimony of David Fredericks at 3 to 6. Please indicate whether the Company designed its proposed project specifically to meet Nantucket's power needs for 30 years assuming a projected load growth of 2.1 percent per year, or on some other basis.

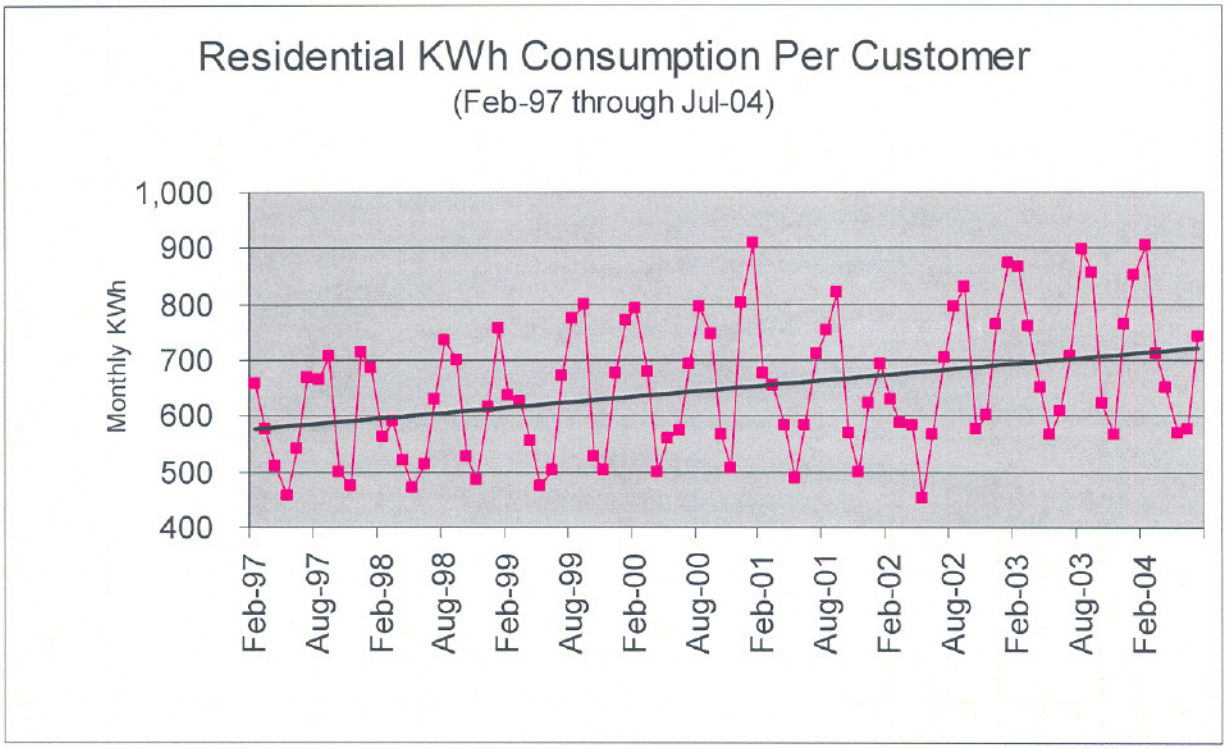
(c) Please refer to the Testimony of David Fredericks at 3 to 6. Please estimate how long the proposed project might meet Nantucket's power needs given the Company's May 1, 2004 forecast and projected load growth on Nantucket of 2.9 percent per year.

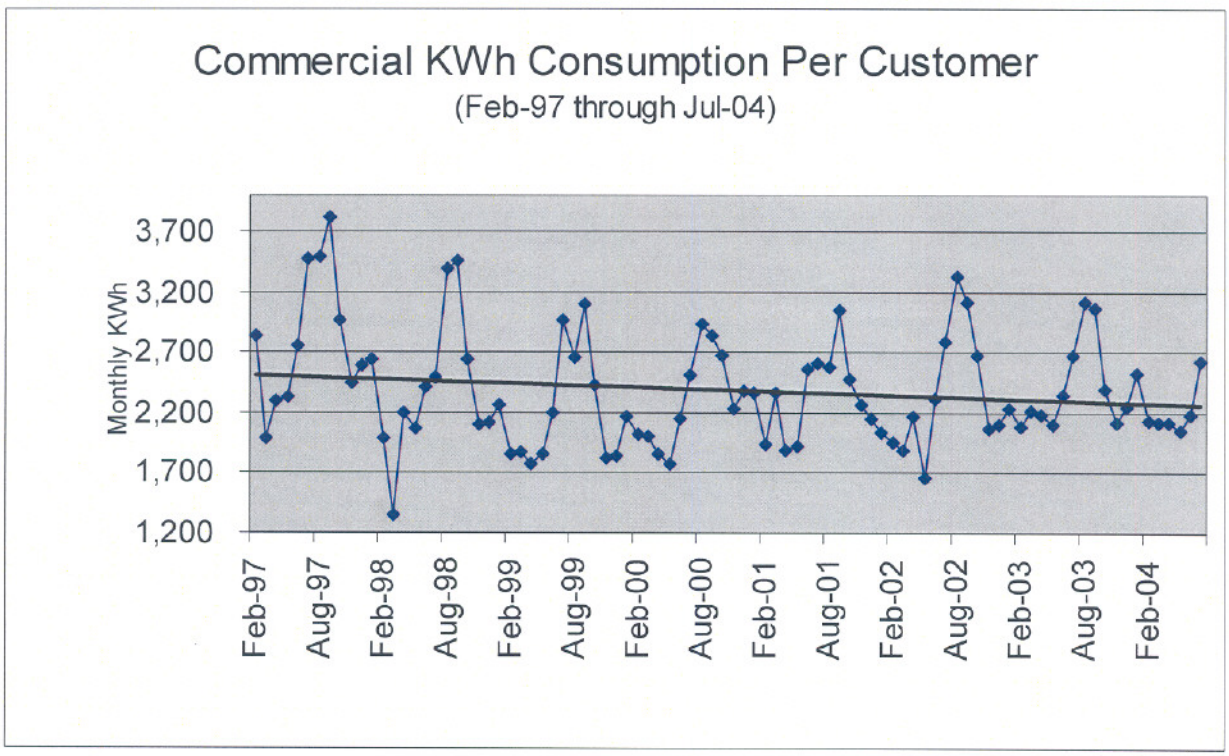
(d) Please discuss in detail any contingency plans the Company may have to address significantly higher or lower load growth in upcoming years, as compared to the load growth projected for Nantucket in the most recent forecast prior to proposed project construction.

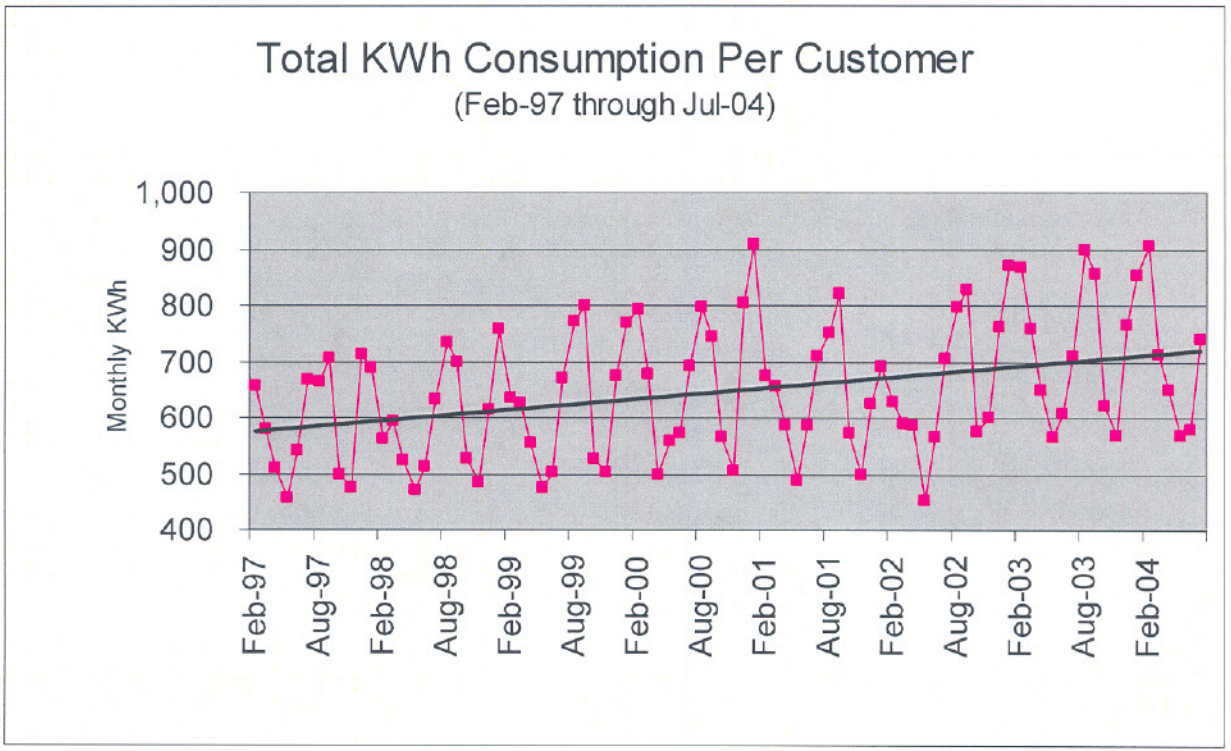
Response:

(a) Approximately 76% of Nantucket's real load growth is attributable to increasing population and numbers of commercial customers while the remaining 24% is attributable to increasing energy consumption by the existing population and customers.

See Appendix A. The charts show that average monthly kWh consumption per customer increased roughly 100 kWh over the last seven years. All of this increase occurred in the residential sector, which is consistent with the dramatic rise in Nantucket home values over the last several years. The commercial sector showed a slight downward trend in kWh consumption per customer.


Residential KWh Consumption Per Customer
(Feb-97 through Jul-04)
Monthly KWh
1,000
900
800
700
600
500
400
Feb-97
Aug-97
Feb-98
Aug-98
Feb-99
Aug-99
Feb-00
Aug-00
Feb-01
Aug-01
Feb-02
Aug-02
Feb-03
Aug-03
Feb-04


Commercial KWh Consumption Per Customer
(Feb-97 through Jul-04)
Monthly KWh
3,700
3,200
2,700
2,200
1,700
1,200
Feb-97
Aug-97
Feb-98
Aug-98
Feb-99
Aug-99
Feb-00
Aug-00
Feb-01
Aug-01
Feb-02
Aug-02
Feb-03
Aug-03
Feb-04


Total KWh Consumption Per Customer
(Feb-97 through Jul-04)
Monthly KWh
1,000
900
800
700
600
500
400
Feb-97
Aug-97
Feb-98
Aug-98
Feb-99
Aug-99
Feb-00
Aug-00
Feb-01
Aug-01
Feb-02
Aug-02
Feb-03
Aug-03
Feb-04

	Year	Month	Residential KWh	Residential Customers	Residential Usage	Commercial KWh	Commercial Customers	Commercial Usage	Total KWh	Total Customers	Total Usage
Feb-97	1997	2	5,583,571	8,511	656	2,925,342	1,031	2,837	8,508,913	9,542	892
Mar-97	1997	3	4,937,704	8,540	578	2,050,062	1,032	1,986	6,987,766	9,572	730
Apr-97	1997	4	4,365,211	8,562	510	2,374,549	1,033	2,299	6,739,760	9,595	702
May-97	1997	5	3,916,206	8,603	455	2,414,859	1,040	2,322	6,331,065	9,643	657
Jun-97	1997	6	4,668,960	8,635	541	2,862,888	1,040	2,753	7,531,848	9,675	778
Jul-97	1997	7	5,789,500	8,671	668	3,628,072	1,044	3,475	9,417,572	9,715	969
Aug-97	1997	8	5,769,255	8,681	665	3,647,024	1,042	3,500	9,416,279	9,723	968
Sep-97	1997	9	6,148,474	8,700	707	3,998,203	1,045	3,826	10,146,677	9,745	1,041
Oct-97	1997	10	4,329,974	8,711	497	3,102,992	1,045	2,969	7,432,966	9,756	762
Nov-97	1997	11	4,325,218	9,151	473	2,598,665	1,063	2,445	6,923,883	10,214	678
Dec-97	1997	12	6,222,207	8,729	713	2,705,980	1,043	2,594	8,928,187	9,772	914
Jan-98	1998	1	6,120,617	8,920	686	2,745,515	1,041	2,637	8,866,132	9,961	890
Feb-98	1998	2	5,037,684	8,948	563	2,159,238	1,085	1,990	7,196,922	10,033	717
Mar-98	1998	3	5,304,954	8,971	591	2,569,110	1,917	1,340	7,874,064	10,888	723
Apr-98	1998	4	4,683,733	8,984	521	2,412,226	1,095	2,203	7,095,959	10,079	704
May-98	1998	5	4,245,196	9,020	471	2,610,200	1,263	2,067	6,855,396	10,283	667
Jun-98	1998	6	4,647,364	9,046	514	3,030,713	1,255	2,415	7,678,077	10,301	745
Jul-98	1998	7	5,721,237	9,072	631	3,169,068	1,275	2,486	8,890,305	10,347	859
Aug-98	1998	8	6,676,860	9,092	734	4,250,138	1,250	3,400	10,926,998	10,342	1,057
Sep-98	1998	9	6,373,759	9,125	698	4,162,729	1,203	3,460	10,536,488	10,328	1,020
Oct-98	1998	10	4,805,752	9,143	526	3,421,376	1,298	2,636	8,227,128	10,441	788
Nov-98	1998	11	4,426,732	9,157	483	2,814,718	1,341	2,099	7,241,450	10,498	690
Dec-98	1998	12	5,631,985	9,176	614	2,771,037	1,310	2,115	8,403,022	10,486	801
Jan-99	1999	1	6,941,272	9,179	756	3,009,754	1,332	2,260	9,951,026	10,511	947
Feb-99	1999	2	5,845,679	9,194	636	2,501,997	1,353	1,849	8,347,676	10,547	791
Mar-99	1999	3	5,758,164	9,212	625	2,524,511	1,351	1,869	8,282,675	10,563	784
Apr-99	1999	4	5,126,626	9,237	555	2,532,339	1,423	1,780	7,658,965	10,660	718
May-99	1999	5	4,370,477	9,249	473	2,548,959	1,376	1,852	6,919,436	10,625	651

Jun-99	1999	6	4,666,187	9,281	503	3,008,319	1,366	2,202	7,674,506	10,647	721
Jul-99	1999	7	6,259,086	9,325	671	4,164,987	1,405	2,964	10,424,073	10,730	971
Aug-99	1999	8	7,221,898	9,345	773	4,085,113	1,536	2,660	11,307,011	10,881	1,039
Sep-99	1999	9	7,473,623	9,348	799	4,768,519	1,535	3,107	12,242,142	10,883	1,125
Oct-99	1999	10	4,927,100	9,357	527	3,534,594	1,457	2,426	8,461,694	10,814	782
Nov-99	1999	11	4,709,647	9,370	503	2,882,319	1,579	1,825	7,591,966	10,949	693
Dec-99	1999	12	6,335,264	9,390	675	3,023,147	1,639	1,845	9,358,411	11,029	849
Jan-00	2000	1	7,224,539	9,394	769	3,396,305	1,565	2,170	10,620,844	10,959	969
Feb-00	2000	2	7,443,760	9,386	793	3,126,438	1,554	2,012	10,570,198	10,940	966
Mar-00	2000	3	6,370,597	9,400	678	3,115,827	1,554	2,005	9,486,424	10,954	866
Apr-00	2000	4	4,711,645	9,430	500	2,860,433	1,540	1,857	7,572,078	10,970	690
May-00	2000	5	5,292,269	9,463	559	2,846,691	1,600	1,779	8,138,960	11,063	736
Jun-00	2000	6	5,429,735	9,501	571	3,397,639	1,582	2,148	8,827,374	11,083	796
Jul-00	2000	7	6,601,118	9,537	692	3,986,500	1,592	2,504	10,587,618	11,129	951
Aug-00	2000	8	7,612,852	9,560	796	4,563,984	1,554	2,937	12,176,836	11,114	1,096
Sep-00	2000	9	7,137,272	9,574	745	4,535,547	1,601	2,833	11,672,819	11,175	1,045
Oct-00	2000	10	5,420,228	9,587	565	4,069,458	1,523	2,672	9,489,686	11,110	854
Nov-00	2000	11	4,856,913	9,607	506	3,142,844	1,411	2,227	7,999,757	11,018	726
Dec-00	2000	12	7,735,677	9,623	804	3,545,746	1,495	2,372	11,281,423	11,118	1,015
Jan-01	2001	1	8,745,916	9,630	908	3,537,656	1,497	2,363	12,283,572	11,127	1,104
Feb-01	2001	2	6,493,354	9,628	674	2,865,099	1,482	1,933	9,358,453	11,110	842
Mar-01	2001	3	6,323,000	9,647	655	2,883,000	1,217	2,369	9,206,000	10,864	847
Apr-01	2001	4	5,649,565	9,664	585	2,764,042	1,459	1,894	8,413,607	11,123	756
May-01	2001	5	4,738,916	9,696	489	2,811,906	1,470	1,913	7,550,822	11,166	676
Jun-01	2001	6	5,695,763	9,744	585	3,516,345	1,372	2,563	9,212,108	11,116	829
Jul-01	2001	7	6,930,023	9,770	709	4,354,951	1,667	2,612	11,284,974	11,437	987
Aug-01	2001	8	7,369,386	9,793	753	4,258,491	1,657	2,570	11,627,877	11,450	1,016
Sep-01	2001	9	8,064,998	9,817	822	5,061,353	1,660	3,049	13,126,351	11,477	1,144
Oct-01	2001	10	5,607,226	9,824	571	3,946,922	1,597	2,471	9,554,148	11,421	837
Nov-01	2001	11	4,909,557	9,844	499	3,290,522	1,457	2,258	8,200,079	11,301	726
Dec-01	2001	12	6,144,242	9,855	623	3,298,353	1,530	2,156	9,442,595	11,385	829

Jan-02	2002	1	6,841,951	9,881	692	3,094,604	1,517	2,040	9,936,555	11,398	872
Feb-02	2002	2	6,230,830	9,894	630	3,038,479	1,557	1,951	9,269,309	11,451	809
Mar-02	2002	3	5,835,108	9,921	588	2,761,479	1,468	1,881	8,596,587	11,389	755
Apr-02	2002	4	5,799,704	9,924	584	3,175,003	1,461	2,173	8,974,707	11,385	788
May-02	2002	5	4,458,805	9,817	454	2,772,347	1,675	1,655	7,231,152	11,492	629
Jun-02	2002	6	5,644,359	9,968	566	3,545,465	1,536	2,308	9,189,824	11,504	799
Jul-02	2002	7	7,033,273	9,990	704	4,179,924	1,499	2,788	11,213,197	11,489	976
Aug-02	2002	8	7,941,816	9,991	795	5,148,810	1,549	3,324	13,090,626	11,540	1,134
Sep-02	2002	9	8,318,749	10,027	830	4,951,743	1,588	3,118	13,270,492	11,615	1,143
Oct-02	2002	10	5,772,849	10,024	576	4,494,407	1,681	2,674	10,267,256	11,705	877
Nov-02	2002	11	5,975,765	9,948	601	3,499,546	1,694	2,066	9,475,311	11,642	814
Dec-02	2002	12	7,595,095	9,970	762	3,501,667	1,664	2,104	11,096,762	11,634	954
Jan-03	2003	1	8,760,196	10,047	872	3,657,157	1,638	2,233	12,417,353	11,685	1,063
Feb-03	2003	2	8,730,438	10,088	865	3,354,965	1,608	2,086	12,085,403	11,696	1,033
Mar-03	2003	3	7,691,366	10,131	759	3,470,334	1,572	2,208	11,161,700	11,703	954
Apr-03	2003	4	6,570,052	10,099	651	3,263,700	1,501	2,174	9,833,752	11,600	848
May-03	2003	5	5,694,015	10,090	564	3,120,735	1,482	2,106	8,814,750	11,572	762
Jun-03	2003	6	6,117,419	10,054	608	3,849,818	1,641	2,346	9,967,237	11,695	852
Jul-03	2003	7	7,180,959	10,142	708	4,297,996	1,610	2,670	11,478,955	11,752	977
Aug-03	2003	8	9,174,340	10,220	898	5,282,394	1,692	3,122	14,456,734	11,912	1,214
Sep-03	2003	9	8,759,414	10,241	855	5,112,245	1,668	3,065	13,871,659	11,909	1,165
Oct-03	2003	10	6,364,363	10,231	622	4,163,716	1,733	2,403	10,528,079	11,964	880
Nov-03	2003	11	5,816,259	10,256	567	3,430,789	1,620	2,118	9,247,048	11,876	779
Dec-03	2003	12	7,851,054	10,274	764	3,618,249	1,608	2,250	11,469,303	11,882	965
Jan-04	2004	1	8,767,210	10,275	853	3,714,742	1,473	2,522	12,481,952	11,748	1,062
Feb-04	2004	2	9,304,009	10,287	904	3,393,066	1,588	2,137	12,697,075	11,875	1,069
Mar-04	2004	3	7,323,969	10,291	712	3,258,001	1,544	2,110	10,581,970	11,835	894
Apr-04	2004	4	6,724,497	10,334	651	3,124,673	1,481	2,110	9,849,170	11,815	834
May-04	2004	5	5,865,429	10,332	568	3,303,433	1,604	2,059	9,168,862	11,936	768
Jun-04	2004	6	5,980,746	10,355	578	3,681,514	1,690	2,178	9,662,260	12,045	802
Jul-04	2004	7	7,709,616	10,390	742	4,511,066	1,722	2,620	12,220,682	12,112	1,009

Nantucket Electric Company
Number of Customers and KWh Energy Consumption
(1997-2004)

Year	Residential Customer Counts	Growth Rate	Residential KWh	Growth Rate	Commercial Customer Counts	Growth Rate	Commercial KWh	Growth Rate
1997	8,681		56,344,176		1,041		35,048,697	
1998	9,055	4.3%	63,675,873	13.0%	1,278	22.7%	36,116,068	3.0%
1999	9,291	2.6%	69,635,023	9.4%	1,446	13.2%	38,584,558	6.8%
2000	9,505	2.3%	75,836,605	8.9%	1,548	7.0%	42,587,412	10.4%
2001	9,743	2.5%	76,671,946	1.1%	1,505	-2.7%	42,588,640	0.0%
2002	9,946	2.1%	77,448,304	1.0%	1,574	4.6%	44,163,474	3.7%
2003	10,156	2.1%	88,709,875	14.5%	1,614	2.6%	46,622,098	5.6%
2004*	10,370	2.1%	91,193,752	2.8%	1,656	2.6%	48,953,203	5.0%
Average Annual Growth: 1997-2004:								
		2.6%		7.1%		6.9%		4.9%

Year	Total Customer Counts	Growth Rate	Total KWh	Growth Rate
1997	9,722		91,392,873	
1998	10,332	6.3%	99,791,941	9.2%
1999	10,737	3.9%	108,219,581	8.4%
2000	11,053	2.9%	118,424,017	9.4%
2001	11,248	1.8%	119,260,586	0.7%
2002	11,520	2.4%	121,611,778	2.0%
2003	11,771	2.2%	135,331,973	11.3%
2004*	12,026	2.2%	140,146,954	3.6%
Average Annual Growth: 1997-2004:				
		3.1%		6.3%

* 2004 estimate equal to actual YTD, annualized.

Applied to the 1997 customer base of roughly 10,000 customers, the 100 kWh increase in monthly kWh consumption per customer accounts for (12 * 100 * 10,000) = 12,000,000 kWh of load growth. This is equal to 24% of the total load growth of 49,000,000 kWh that occurred on the island since 1997, as shown in Appendix B.

(b) The Company has not forecast load growth out 30 years. Mr. Fredericks was providing a simple analogy to the growth seen over the past 10 years, and the potential impact on peak loads if this trend continues for an additional 30 years.

(c) Given the peak load of 33.4 MW in August of 2003 and a compounded growth of 2.9% annually, the Island would reach 70.2 MW in 2029. The combined rating of the existing 46V cable system and the proposed project would be 70 MW.

(d) In the event loads grow faster than the present forecast, the existing on-island generation is permitted such that units 12 and 13, with generating capacity of approximately 5.5 MW summer rating, can run in parallel and provide peak shaving. The combination of the existing cable system and the two combustion turbines will cover a peak load of approximately 40 MW. Even if load growth is significantly lower than anticipated prior to the construction of the proposed project, the turbines may still be needed to supplement and serve Nantucket's customers' needs during peak load conditions.

Prepared by or under the supervision of: David Fredericks

Information Request DTE-G-4

Request:

Please refer to the Testimony of David Fredericks at 5. Please discuss in detail demand side management opportunities pursued by the Company to hold demand below the maximum rating of the Company's existing cable.

Response:

Nantucket Electric continues to actively market its seven residential and three business energy efficiency programs to its customers. These programs are filed annually with the DTE and are developed in collaboration with the Massachusetts Division of Energy Resources and a number of non-utility parties including the Associated Industries of Massachusetts, Inc., The Energy Consortium, Low-Income Affordability Network and the Northeast Energy Efficiency Council. The 2004 programs were filed in the "2004 Energy Efficiency Plan – Massachusetts Electric and Nantucket Electric" on February 27, 2004.

Nantucket Electric's efficiency programs target all customer sectors including the business, residential and low-income sectors. Electric efficiency opportunities associated with new construction and the renovation and retrofit of existing facilities are identified by third-party contractors or engineering firms, and incentives are provided to defray the equipment and installation costs to customers.

The programs offered are:

Residential Programs:

a. ENERGY STAR Homes- New Construction, including low income
b. ENERGY STAR Heating, Ventilation, and Air Conditioning
c. Residential Conservation Services (Mass-SAVE)
d. EnergyWise program (including low income services)
e. ENERGY STAR Lighting
f. ENERGY STAR Appliances
g. Appliance Management Program (low income services)

Commercial/Industrial Programs:

a. Design 2000Plus – New Construction & Equipment
b. Energy Initiative – Existing buildings & Equipment
c. Small Business Services

Contractors responsible for delivering the programs work with lists of customers that have not previously participated in the programs. The Company's vendors offer Small Business

and Residential services directly to customers through direct mail, phone contact, and local and regional advertising. A Company Account Manager is assigned to work with large business and municipal customers to ensure they receive the level of technical assistance required to identify efficiency opportunities and financial incentives to install the equipment. Since 2000, program participation has included 438 residential customers, 19 low-income customers and 61 business customers. This participation has yielded annual energy savings of 540 MWH and a summer peak demand reduction of 150 kW.

Prepared by or under the supervision of: David Fredericks and Timothy Stout

Nantucket Electric Company
Docket No. D.T.E. 04-10
Responses to the Department's First Set of Information Requests
Information Request DTE-G-5

Request:

Please refer to the Testimony of David Fredericks at 6. Please discuss in detail the Company's evaluation, in early 2000, of the cost, reliability, environmental impact, and ability to meet customers' needs in a timely fashion for each of the following supply options for the Company's customers: on-Island generation, distributed generation, and various renewable options. Please provide a copy of any study or other major documentation associated with the Company's evaluation.

Response:

1999-2000

Nantucket Electric Company engaged PLM Electric Power Engineering to perform a preliminary study of the existing electric supply to the Island of Nantucket and to analyze a second cable similar to the original and to examine alternative plans to expand on Island generation. See Appendix A, "Nantucket Electric Company Long Term Resource Plan – August 2000."

2000-2001

E-PRO Consulting, L.L.C. conducted a more detailed review of expanded on-Island generation and a submarine cable, various voltage ratings for a second cable, and transmission interconnection points including impacts on system performance and stability. Furthermore, the study includes an economic analysis of the two primary options (a second cable and expanded on-Island generation). See Appendix B, "Nantucket Electric Company, Electric Supply Study, Phase I, Engineering Report".

Appendix C is a December 2001 summary presentation to management on project considerations, including on-Island Generation, distributed generation and various renewable options.

Prepared by or under the supervision of: David Fredericks/Joseph P. Carey, P.E./
and David M. Campilii, P.E.

Information Request DTE-G-6

Request:

Please refer to PH Tr. 1 at 25 to 26. Please indicate whether disruption from installation or repair of the proposed submarine cable would be greater in the inner harbor area of Lewis Bay.

Response:

Lewis Bay has a high volume of marine activities and infrastructure, including the federal channel, ferry terminals, marinas, piers, wharfs, and mooring fields. These would add complexity to any submarine cable installation or repair in this area. A submarine cable installed in Lewis Bay would be at greater risk of mechanical damage due to dredging, spudding of barges, mooring installations and other marine activities in this area when compared to a cable installed in the proposed cable route.

Either a cable installation or repair in Lewis Bay would have a potentially significant impact on marine activities. Information Request DTE-C-6 describes the time required to install a cable in Lewis Bay and some of the installation challenges. The installation for the submarine cable through Lewis Bay up to the horizontal direction drill exit point would be a continuous process, which would progress at approximately 100 ft. per hour. Contrasted with the unanticipated timing and area of a cable repair, however, a cable installation is a scheduled event, and affects a particular area for a limited number of hours. Installation can also be stopped for short periods, whereas a repair tends to be of an emergency nature and thus must proceed as quickly as possible and will impact a particular location for several weeks.

If a cable repair is required in Lewis Bay, depending on the location, it is possible that the federal channel could be closed or restricted for a period of time up to several weeks in duration. Other possible impacts, again depending on the repair location, could be the closing of mooring fields to provide the area required to anchor repair vessels and associated support vessels. Some of the repair activities would include the excavation of a trench approximately 150 ft. long by 50 ft. wide by 8 ft. deep to expose the cable. All excavated material would have to be stored on a barge for post-repair burial. The cable would then be pulled up to the repair vessel for testing and splicing. Once splicing is complete the cable would be reburied. Reburial would require an additional area of approximately 180 ft. wide along side the existing cable corridor to bury the cable slack added in the repair process. The area that would be restricted during a cable repair is approximately 300 Ft. X 600 Ft.

Following is an estimate of the number of days the channel could be restricted for cable repair activities:

Repair Activity:	No. of Days per Activity:
Final fault location check and repair barge mooring.	1
Cable de-burial.	5-10
Cable cutting and first end recovery.	1
Fault clearance, testing and re-laying of first end.	1
Second end recovery.	1
Fault clearance, testing.	1
First splicing operation and testing.	4
Spare cable lay and recovery of first cable end.	1
Second Splicing operation and testing.	4
Lay of final bight and final test.	1
Cable re-burial.	2-5
Final testing.	1
TOTAL	23-31

Weather delays and construction difficulties could extend these estimated times.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-G-7

Request:

Please refer to PH Tr. 1 at 25 to 26. Please indicate the frequency and average duration of repair work likely to be required for the submarine portion of the proposed project.

Response:

The frequency of submarine cable failures is from the paper titled:

CIGRE Working Group 21.06 "Methods to Prevent Mechanical Damage to Submarine Cables" Paper No. 21-12, Penary Session Paris 1986.

- All submarine cable types > 18 kV were included in the survey
- Global failure rate was 0.32 failures/ year / 100 km cable
- Failure rate due to cable defects was ~ 0.05 failures / year / 100 km cable
- Failure rate due to third party mechanical damage was ~ 0.27 failures / year / 100 km cable

For the proposed Nantucket Cable these failure rates would correspond to the following predictions.

- Cable defect failures: 0.022 failures/yr or 1 failure every 45.5 years
- Mechanical damage failures: 0.119 failures/ yr or 1 failure every 8.4 years
- Overall failure rate: 0.141 failures/yr or 1 failure every 7.1 years

The Company believes that by selecting a submarine cable route that avoids areas of high marine activity and burying the proposed cable to a depth of 8 feet that we significantly reduces our exposure to mechanical damage. Therefore we believe that the projected failure rate for the proposed cable would be close to the failure rate of cable defects summarized above.

The average repair time for a submarine cable is detailed in DTE-G-6. An additional 14 days should be added to this schedule for initial fault locating and the mobilization of the repair vessels.

Nantucket Electric Company
Docket No. D.T.E. 04-10
Responses to the Department's First Set of Information Requests
Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-G-8

Request:

Please refer to PH Tr. 1 at 46. Please provide support for the Company's claims that (a) failure of its installed cables occurs infrequently, approximately once every 25 years, and (b) the Company would need to return to work on its proposed conduit system, if installed, approximately once every 30 years.

Response:

a) The IEEE Gold Book Std. 493 (Design of Reliable Industrial and Commercial Power Systems), published in 1990, lists failure rates for underground distribution cables over 15,000 volts installed in duct or conduit. This reference is for all insulation types.

The published failure rate is 0.00336 failures per 1000 circuit feet per year. For the Barnstable land cable route, this failure rate corresponds to failure rate of one failure every 13.2 years.

It is the Company's opinion that these published failure rates are higher than we would expect on its installation for two reasons. First, this data is based on both industrial and commercial power installations and is for all insulation types. Second, in recent years the materials, manufacturing process and quality controls for extruded dielectric cable have improved significantly, which should improve the reliability of these cables. Since the published failure rates from this reference are based on the failure rates of older cables, it does not reflect the benefit of these manufacturing advances.

b) The Company could find no data on the failure rates of conduit system. The response was based on my own professional experience and was intended to point out that once the conduits and cables are installed, the Company would rarely need to dig up the streets for repairs. Conduit repairs are usually the result of damage resulting from ongoing excavating activities and the Company normally makes the necessary repairs immediately while the trench is still open.

Prepared by or under the supervision of: David Fredericks

Request:

Please refer to PH Tr. 2 at 31. Please discuss in detail how the Company's proposed construction of a second submarine cable between Cape Cod and Nantucket would reduce electrical losses to the Company's electric transmission system on Nantucket.

Response:

Electrical losses (Ir^2) are the mathematical product of system impedance and the value of the current squared. Since electrical losses vary with the square of the current, reducing the current by ½ results in a reduction in losses ¼ of the original value. Hence, by splitting the current between the two cable systems of approximately equal impedance, each cable system will have electrical losses of approximately ¼ the value of the same current magnitude on one cable. Therefore, the losses for two cables are approximately ½ the value of the same load being served by one cable.

Prepared by or under the supervision of: Joseph P. Carey, P.E. and David Fredericks

Information Request DTE-G-10

Request:

Please refer to PH Tr. 2 at 32. The Company indicates that it would not lease part of its proposed electric cable to other companies, but would lease the fiber component that is inside the winding of the cable. Please explain the Company's plans for leasing fiber optic capacity.

Response:

A total of 48 fiber strands is proposed for installation in the electric supply cable and forty strands will be available for lease.

The Company is soliciting proposals from interested parties for the lease of the dark fiber strands contained within the electric cable by issuing a Request For Proposal (RFP) to fourteen telecommunications or dark fiber network companies to gauge interest and help determine the market value of leasing the fiber strands. In order to maximize the economic advantages of the fibers, the RFP reserves the right for the Company to reject any and all proposals submitted. The Company, in its sole and absolute discretion, will determine the number of strands available for third-party use and evaluate and determine the best and most economical use of all strands. All proposed use of the strands will be subject to the parties successfully negotiating a Fiber Use Agreement.

The Company believes the addition of the fiber in the proposed electric cable combined with the fiber in the existing electric cable offering two separate and physically diverse routes to Nantucket Island will generate a favorable response from third parties. The Company will develop a lease price per strand per cable, offer capacity to third parties and establish contractual arrangements as required.

Prepared by or under the supervision of: Joseph P. Carey, P.E. and David Fredericks

Request:

Please refer to PH Tr. 2 at 36. The Company indicates that it anticipates a possible future regulatory review to determine "the right amount of backup." Please explain the nature of backup sources that might be considered, and clarify if these are in addition to the two submarine cables.

Response:

Exhibit DF-1, page 1 of 1, lists typical backup sources that Nantucket Electric might consider as backup power supply in addition to the two submarine cables. The amount of backup, however, would be a future consideration.

Prepared by or under the supervision of: David Fredericks

Nantucket Electric Company
Docket No. D.T.E. 04-10
Responses to the Department's First Set of Information Requests
Information Request DTE-C-1

Request:

Please refer to the Testimony of David M. Campilii at 5. Please indicate whether 8 feet is a standard depth for burial of submarine cable. Please discuss the arguments for and against burying the submarine cable at a greater or lesser depth.

Response:

There is no "standard" burial depth for submarine cables. In a variety of situations, Submarine cables have been installed directly on the seabed (no burial), and have been buried to depths ranging from approximately 1 foot to as much as 15-25 feet below the seafloor.

The majority of submarine cable failures are caused by external damage, such as fishing activities, anchoring, dredging, seabed shifts, etc. The level of marine activity, and the seabed characteristics (i.e., soft silt bottom, sand bottom, clay, rock, stability, etc.) are significant factors in selecting a burial depth.

Nantucket Sound can be generally characterized as having a coarse sandy bottom, with areas of clay and rock. Areas of the Sound are subject to sand transport, and to moving "sand waves" on the bottom. Based on the type and size of shipping and marine activities in Nantucket Sound, and on the general bottom characteristics, the Company believes that a 4 foot burial depth will protect the cable from the majority of external hazards. The 8-foot burial depth was selected to allow for bottom movements (such as sand waves) of as much as 4 feet, while still providing a 4-foot cover over the cable.

Burial shallower than 8 feet has the advantages of somewhat lower cost, and a higher certainty that "design burial" will be achieved (i.e., less likelihood of hitting rock if plowing through 4 feet of material instead of 8 feet of material). Furthermore, retrieval of the cable in the event of a problem is somewhat easier with shallow burial. Burial shallower than 8 feet has the disadvantage that the cable will be more subject to damage from exposure to marine activities, particularly in areas of bottom movement.

Burial deeper than 8 feet has the advantage of higher certainty that the cable will be unaffected by marine activities, even with shifting seabed conditions. This can quickly become a "point of diminishing returns" situation as burial depth increases, though. Deeper burial can dramatically increase installation costs, and reduce certainty that "design burial" will be achieved (i.e., more likelihood of hitting rock if plowing through 12 feet of material instead of 8 feet of material). Further, retrieval of the cable in the event of a problem becomes more difficult as burial depth increases. Cable power rating is also negatively affected as burial depth increases.

Prepared by or under the supervision of: David M. Campilii, P.E.

Information Request DTE-C-2

Request:

Please discuss Nantucket Electric's experience with 8-foot-deep burial of its first submarine cable. In particular, please discuss variation, if any, in the depth of the cable beneath the seafloor and any associated safety concerns or concerns for the integrity of the cable.

Response:

Nantucket Electric has had a favorable experience with the 8-foot burial depth of the first power cable, installed between Harwich and Nantucket in 1996. The Company has had no instances of marine damage or electrical failure with this cable. Of the 140,000 feet of submarine cable installed at the time, the Company was able to achieve 8-foot burial on 138,000 feet of the route (98.6 % of the route). There was a 2,000 foot segment, approximately 4 miles off the coast of Harwich, where only 6-foot burial was achieved, due to the presence of rock.

The Company has performed two burial depth surveys of the first submarine cable since its installation. A 1998 survey indicated that the vast majority of the cable had in excess of 6 feet of cover, with approximately 1,000 feet of cable having 4.5 to 6 feet of cover. A 2003 survey provided similar conclusions.

The Company believes that this demonstrates that 8-foot burial is achievable in most of the Sound, and that 8-foot initial burial provides a reasonably high degree of assurance of maintaining a minimum of 4-foot burial over time, with sand wave conditions in the Sound. The Company also believes that the burial depth selected has demonstrated good protection for the cable from external damage.

Prepared by or under the supervision of: David M. Campilii, P.E.

Information Request DTE-C-3

Request:

(a) Please indicate why 8 feet rather than a deeper or shallower depth is proposed for installation of the submarine portion of the proposed transmission line. (b) Would installation depth of the proposed transmission line vary over the length of the submarine segment (resulting in an installation depth of eight feet on average) or remain constant? (c) Please indicate whether the Company anticipates a transition zone at or near landfall where the installation depth of the proposed transmission line would gradually increase or decrease with water depth.

Response:

a) The Company has selected an 8-foot burial depth based on a favorable experience with the initial (1996) cable between Harwich and Nantucket. (Please refer to DTE-C-2.) With an 8-foot initial burial, the Company believes that it will be able to maintain a minimum burial of 4 feet over time, and that the cable will be protected from most external marine hazards. The Company's geotechnical research on the proposed route leads us to believe that we will be able to achieve 8-foot burial along this route.

b) The jet plow will ride along the seabed on tires or skids. The length of the plow blade will determine the burial depth, so, in general, the cable will be buried at the 8-foot depth. The plow blade is mounted on a pivot, so there is some ability to vary depth. The Company's desire is to achieve approximately 8-foot burial throughout the route. If un-plowable areas are encountered (bedrock, for example), reduced burial depth may be necessary in those areas. The Company will evaluate the risk associated with shallow burial areas, should they occur.

c) The immediate area of the landfalls will be installed using Horizontal Directional Drilling (HDD) technology, and depth will vary from 8 feet in this zone (i.e., it will be deeper). Once the HDD conduit ends, and jet plowing commences, the Company will try to achieve 8 foot burial throughout the submarine cable route.

Prepared by or under the supervision of: David M. Campilii, P.E.

Information Request DTE-C-4

Request:

Please refer to PH Tr. 1 at 20 to 21. Please discuss when the Company might begin construction of the proposed project if the Company does not have all necessary permits in hand sometime in fall 2004 as it anticipates.

Response:

Nantucket Electric is committed to complete this project in a time frame that will ensure a reliable electric supply for the customers of Nantucket Electric. The Company's load forecast indicates a need for the project in early 2006. If permits are not obtained by the fall of 2004, Nantucket Electric would begin construction as soon as the permits are received, providing seasonal restrictions or weather conditions permit.

Prepared by or under the supervision of: Joseph P. Carey, P.E. and David Fredericks

Information Request DTE-C-5

Request:

Please refer to PH Tr. 2 at 23 and Exh. NEC-DF-3. (a) Please indicate whether the Company anticipates (i) completing its proposed conduit work in Nantucket and Barnstable at approximately the same time, *i.e.*, spring 2005; and (ii) subsequently installing its proposed cable system in the identified conduits in Nantucket and Barnstable at approximately the same time, *i.e.*, fall, 2005. (b) Does the Company expect to suspend all construction on the proposed facilities during summer 2005?

Response:

(a) Nantucket Electric does anticipate completing the conduit work and cable pulling work in Barnstable and Nantucket at approximately the same time. Whether the conduit work and cable pulling work are completed in the spring 2005 and fall 2005 respectively, greatly depends on Nantucket Electric's ability to secure all necessary permits and approvals to begin some construction, as planned and requested, in the fall of 2004. Since there is significantly more conduit and cable pulling required in Barnstable, Nantucket Electric will allow the contractors flexibility in scheduling their to achieve efficiencies, but will require work to be completed in specific time frames.

(b) The Company has committed to Nantucket and Barnstable to suspend construction along the public way in the densely populated residential and commercial areas of Barnstable and Nantucket during the summer months of 2005 (Memorial Day through Labor Day). At that time, however, the Company does anticipate the ability to construction in areas that will have little or no impact on traffic such as the substation site, on portions of the airport property and on Merchants Way.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-6

Request:

Please refer to PH Tr. 1 at 24 to 26. For the alternative of routing through Lewis Bay, please estimate the likely minimum and maximum number of days of disruption to traffic in the inner harbor area of Lewis Bay that might result from installation there of the proposed submarine cable. Please discuss techniques available to minimize congestion in the inner harbor area of Lewis Bay for that alternative, assuming installation of the proposed submarine cable by jet sled or other method(s).

Response:

There are two components of the project that will impact marine traffic during the construction and installation phase of the project. As with our preferred landfall, a horizontal directional drill (HDD) would be required at the Lewis Bay landfall location. This HDD would present additional challenges compared to the Ocean Street landfall due to the existing conditions in Lewis Bay. First, the HDD would have to drill under the pilings, piers, and wharfs in the area of the Steamship Authority. The HDD would have an offshore exit point. This would require the installation of a cofferdam at the exit point. This operation would require the mobilization of barges and the installation of equipment in close proximity to the federal channel. This construction activity would take approximately 7 to 14 days. All efforts would be made to select an entry and exit point for the HDD to minimize impacts on marine traffic.

The installation of the cable using a jet plow technique would require a large cable laying barge pulled by tugboats. The barge and tugboats would be in the inner harbor of Lewis Bay for 3 to 4 days. Due to the congestion in that area, installation progress would be restricted in the harbor. At certain points along the alignment, such as adjacent to Dunbar Point or Harbor Bluff where the harbor narrows, it may be necessary to close the federal channel for a number of hours while the cable is being installed. A cable crossing of the federal channel might also be required, at which time the channel would need to be closed. When the final length of cable is prepared to be pulled into the HDD, approximately 1,000 to 2,000 ft. (depending on the final design) would need to be floated in the inner harbor. This installation activity could probably be completed in one day, but would likely require the complete closure of the inner harbor area.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-7

Request:

Please refer to PH Tr. 1 at 48 to 49. (a) Please discuss reasons, if any, that construction of the proposed project might begin before 7:00 in the morning or end after 5:00 in the afternoon. (b) Please discuss reasons, if any, that construction of the proposed project might proceed on Saturdays or Sundays, and the likely hours of such weekend construction.

Response:

(a) The Company will coordinate its constructions hours with each community and in accordance with any applicable ordinances. In the event that an emergency or other unusual circumstance requires work outside normal hours, the Company will coordinate closely with local officials.

(b) (b) There are several areas where it might be beneficial to the communities of Nantucket and Barnstable if construction is scheduled at night or on the weekends to reduce traffic congestion and other disruptions. These areas include the Route 28 crossing in Barnstable and some of the major intersections of in Barnstable and Nantucket. All of these intersections are in general commercial areas with little impact on residential abutters. Banknorth, which is located on the Barnstable Municipal Airport at the rotary has already requested that when project construction crosses its driveway, the construction be done at a time other than the banks hours of operation. During the horizontal direction drilling activity, 24-hour operation may be required for a short period. Any night or weekend activities will be closely coordinated with municipal officials. Submarine cable installation is a 24-hour operation, but given that it is an offshore activity, it will have no impact on the general public.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-8

Request:

Please refer to PH Tr. 1 at 48 to 49. Please indicate the hours when construction for the proposed project at the heavily traveled intersection of Old Colony and Ocean Streets would most likely occur.

Response:

Some of the work at the busy intersection of Old Colony and Ocean Streets is seen as a likely possibility for off-hour construction, but construction along Old Colony and Ocean Streets is anticipated to be scheduled for Monday-Friday daytime construction. Again, the Company will coordinate closely with municipal officials and other utilities to identify areas where off-hour construction may be beneficial.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-9

Request:

Please refer to PH Tr. 1 at 48 to 49. Please indicate whether the Company would be willing to restrict or modify hours of construction on the proposed project in response to a request for same from the owner of an adjacent residence or business.

Response:

The Company is willing to listen to the concerns of abutters during construction to accommodate these abutters when appropriate. However, the Company must weigh the individual concerns against the impact changes in the construction schedule will have on other abutters. Often the more quickly work can be completed in a particular area, the less overall impact it has on all abutters. As stated in DTE-C-7, the Company is already working with Banknorth to address its concerns of this type.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-10

Request:

Please refer to PH Tr. 1 at 34. Please estimate the number of days the Company would require to finish work for the proposed HDD at Kalmus Beach.

Response:

The Company estimates that it will require approximately 7 days for the proposed HDD at Kalmus Beach. This estimate is subject to modification by the successful HDD bidder.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Request:

Please refer to PH Tr. 1 at 34. Please indicate any special safety precautions the Company anticipates taking to prevent malicious or accidental trespass of construction for the proposed project, including in the area of the proposed HDD at Kalmus Beach.

Response:

Contractors will be required to employ any necessary signage, fencing, plating or other barricades for public safety purposes and the protection of the construction sites. The Company will work with each local police department for guidance in this area.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Request:

Please refer to PH Tr. 1 at 46 and 48. Please confirm that the Company would generally undertake reinstallation of sidewalks and curb-to-curb repaving of streets affected by construction for the proposed project.

Response:

The Company has negotiated road and side repairs with the towns of Barnstable and Nantucket. Please refer to Exhibit JPC-3, page 2 of 20 through page 4 of 20, "Street/Route Restoration" and Exhibit JPC-5, page 4 of 28 through page 5 of 28, "Street/Route Restoration."

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-13

Request:

Please refer to PH Tr. 1 at 37 to 38. Please discuss whether and how often, after completion of the proposed project, reopening of paved roadway might be required for access to the contemplated spare steel pipe and 4-inch PVC conduit.

Response:

The proposed spare steel pipe and 4-inch conduit will be routed through the manholes along with the steel pipe for the cable. Therefore, these conduits would be accessible through the manholes and require no road opening. Maintenance of these conduits that would require excavation would be a very rare occurrence.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-14

Request:

Please refer to PH Tr. 1 at 43. Please discuss changes to traffic volume and flow along Ocean Street that would likely occur during construction of the proposed project. Please note any anticipated rerouting of traffic, in particular rerouting of buses, trucks, or other large vehicles, including vehicles with boat or camping trailers.

Response:

First, the Company has worked with the Town to develop a neighborhood-friendly approach to construction and is committed to a construction schedule outside of peak tourist season along Ocean Street. The Company anticipates being able to keep one lane of traffic open to the greatest extent possible and traffic detail officers with be employed to direct traffic in the construction areas. Some alternate routes are available for the detouring of traffic to Old Colony to bypass the construction, if this becomes necessary, for a short period. Since the Company anticipates keeping one lane of traffic open, all standard trucks, buses, campers or boat trailers should be able to pass safely.

Prepared by or under the supervision of: Joseph P. Carey, P.E.

Information Request DTE-C-15

Request:

Please refer to PH Tr. 1 at 43. Please describe any and all measures that the Company anticipates in place to ensure traffic safety during construction of the proposed project. Please include in your description measures anticipated to ensure safe passage of emergency response vehicles.

Response:

The Company will work closely with police, fire and other municipal departments in both towns to ensure traffic safety and the passage of emergency vehicles. Traffic detail officers will be employed during all construction activities in the public way and they will be able to expedite the passage of emergency vehicles. Traffic management plans will be developed in those areas deemed appropriate in our discussions with municipal officials.

Prepared by or under the supervision of: Joseph P. Carey, P.E.